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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/973,710

07/18/2002

Ken K. Chin

6292

7590

09/02/2004

Dr. Ken K. Chin
3 Le Mans Place
Pine Brook, NJ 07058

EXAMINER

GAGLIARDI, ALBERT J

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 09/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,710

Applicant(s)

CHIN ET AL.

Examiner

Albert J. Gagliardi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Comment on Submissions

1. This action is responsive to communications received 25 May 2004.

Priority

2. The examiner reiterates this application repeats a substantial portion of prior Application No. 09/536,856, filed 28 March 2000, and adds and claims additional disclosure not presented in the prior application. Since this application names an inventor or inventors named in the prior application, it may constitute a continuation-in-part of the prior application. Should applicant desire to obtain the benefit of the filing date of the prior application, attention is directed to 35 U.S.C. 120 and 37 CFR 1.78. Absent the claim for priority, the prior art can be used

Information Disclosure Statement

3. The examiner reiterates that the listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. The examiner further notes that even if the list of references in the specification were considered to be a proper information disclosure statement filed, such disclosure would fail to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. As such, none of the information listed has been considered.

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Drawings

4. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Marked-up Drawings" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

5. The drawings are objected to under 37 CFR 1.84(h)(5) because Figure 2 show(s) modified forms of construction in the same view. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The drawings are objected to because new Fig. 2 appears to be directed to three single drawings, one of which seem to represent an alternative form or a first drawing. These drawing should be appropriately numbered such as for example Fig. 2(a), Fig. 2(b) and Fig. 3.

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The substitute specification filed 25 May 2004 has not been entered because it does not conform to 37 CFR 1.125(b) and (c) because:

- a. the statement as to a lack of new matter under 37 CFR 1.125(b) is missing;
- b. a marked-up copy of the substitute specification has not been supplied (in addition to the clean copy; and
- c. a clean copy of the substitute specification has not been supplied (in addition to the marked-up copy).

Claim Objections

8. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered new claims 1-8 have been renumbered 11-18. Claims 11-18 are objected to because of the following informalities:

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The examiner reiterates that the claims are not written in a form that is typically used for patent claims in that any independent claim should contain in the following order, (1) a preamble comprising a general description of all the elements or steps of the claimed combination which are conventional or known, (2) and, in the case of an improvement, phrase such as “wherein the improvement comprises,” and (3) those elements, steps and /or relationships which constitute that portion of the claimed combination which the applicant considers as the new or improved portion. Additionally, where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation.

As an example, the claims could take the general form:

We Claim

1. A staring focal plane array apparatus with multi-cycle integration readout circuitry comprising:

a modulating device for repeatedly separating an optical signal into three phases over a number of cycles;

a photo detector array comprising a plurality of pixels for converting the optical signal into electrical signals;

readout circuitry wherein for each pixel the readout circuitry includes:

a first stage including 3 MOS switches and a capacitor wherein said MOS switches are arranged to receive electrical signal inputs representing one of each said three optical signal phases;

a second stage including an integrator for each pixel; and

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a control means for controlling the 3 MOS switches synchronously with the modulator such that the integrator is operated over a predetermined number of cycles to accumulate the first electrical signal representing the first phase of the optical signal, subtract the electrical signal representing the second phase of the optical signal; and disable the integrator during the period represent the third phase of the optical signal,

a third stage including a charge storing device for receiving the charge accumulated in the integrator after the predetermined number of cycles; and

a reset means for resetting the integrated electrical signal to zero after the predetermined number of cycles; and

a signal processing device for receiving the accumulated electrical signal of each pixel during each cycle and producing an image signal representative of the scene.

2. The apparatus of claim 1 wherein the modulator is a mechanical chopper.
3. The apparatus of claim 1 wherein the modulator is an electric-optical switch.
4. A method of measuring extremely weak signals using a multi-cycle integration focal plane array comprising the following steps:

placing a lens in the optical path between a scene and detector of the multi-cycle integration focal plane array to direct an optical signal toward said detector;

placing an optical modulator in the optical path between the scene and said lens to modulate the optical signal;

generating signal photocurrent and background current with said detector of the multi-cycle integration focal plane when the optical signal is not modulated and only background current when the signal is modulated;

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synchronously controlling an integrator with the modulator in order to accumulate the generated current when the signal is not modulated and subtract the generated current when the signal is modulated;

converting the accumulated current to an electric signal.

5. A method according to claim 4, further comprising a step of:
- processing the electric signals to create an image signal; and
- displaying an image of the scene.

Note: the examiner makes no suggestion that any of the above examples actually represents a patentable claim; or that the claims are actually representative of applicants' disclosed invention; or that the claims are representative and/or supported by applicant's disclosure. The examples are merely meant to show one of many possible forms typically used for claims. The examiner also notes that that, even if the above claims were considered as representative of applicants' invention, they may lead to other objections (such as objections to the drawing for not showing claimed subject matter or objections to the specification for not disclosing claimed subject matter) and or rejections (such as new matter rejections). For more information applicant should refer to MPEP section 608.01(i) thru (n).

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 11-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner notes that, in general, the claims 11-18 do not identify particular limitations (apparatus claims) or steps (method claims) which define the metes and bounds of applicants' invention.

In claim 11, for example, the examiner notes that many of the limitations appear to be directed more to an explanation of the manner in which the device works or steps in the operation of device, or benefits of the device, and not to actual elements of the device and their structural interrelation. The examiner note that while some particular elements can be identified (a correlated multi-cycle integrator, an MIFPA, and a chopper), either the elements themselves (i.e., the correlated multi-cycle integrator or MIFPA) are not so defined (either by the claims or in the specification) so as to allow one skilled in the art to identify which elements constitute the invention, or their relationship to each other.

In claim 12, for example the examiner notes that many of the claim limitations, while possibly representing steps in the operation of the device, are more representative of an explanation of how the device works or how it is made rather than a complete set of steps that definitely and distinctly define a method of detecting extremely weak signals. The examiner also notes that event if the steps themselves were definite and distinct, the structure manipulated by the steps is not so definite and distinct so as to allow one skilled in the art to make or use the invention.

Claim Rejections - 35 USC § 101

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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13. Claims 11-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The examiner notes that the claims are not directed to statutory subject matter, such as a process, apparatus or article of manufacture, but to merely to purported benefits, uses, features or modes of operation of the disclosed invention, or a mix of statutory subject matter (i.e., both an apparatus and method of operating) or both a process of making and method of using) without actually limiting each set of claims to only one class of invention.

Regarding claim 11 and including dependent claims 13, 15 and 17, the examiner notes that the claims seem to includes limitations directed to both elements of an apparatus (a correlated multi-cycle integrator, for example) and steps of a method (accumulating a signal, canceling background, modulating a signal, etc.).

Regarding claim 12 and including dependent claims 14, 16 and 18, the examiner notes that the claims seem to includes limitations that, even if they were considered to be steps, are directed to both steps of making (i.e., placing a lens and modulator) and steps of using (generating current, controlling the integrator).

Claim Rejections - 35 USC § 102 and 35 USC § 103

14. **Note:** Despite the amendments to the claims, the examiner notes that due the considerable speculation and uncertainty regarding the proper interpretation of the claims, as well as the indefinite subject matter, no prior art rejections are being made at this time. As stated in *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962), a rejection under 35 U.S.C. 103 should not be based on considerable speculation about the meaning of terms employed in a claim or assumptions that must be made as to the scope of the claims.

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Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

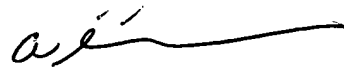
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (571) 272-2436. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Albert J. Gagliardi
Primary Examiner
Art Unit 2878

AJG